Before the
Department of Commerce
National Telecommunications and Information Administration

In the Matter of	)	
	)	
Development of the Nationwide Interoperable Public Safety Broadband Network	)	Docket No. 120928585-2505-1
	)	
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COMMENTS OF THE NEW YORK CITY POLICE DEPARTMENT

I. Introduction

The New York City Police Department (NYPD) appreciates this opportunity to provide our views regarding the design and deployment of the National Public Safety Broadband Network (NPSBN). First, we commend the First Net Board for presenting an initial conceptual network overview presentation in such a short time frame, and we concur with the goal of deploying the network as expeditiously as possible by exploring the potential of public/private partnerships. We also support the concept of a Distributed Core Network consisting of Evolved Packet Cores (EPCs) and a Service Delivery Platform (SDP).

II. First Net Model

Upon analysis, it appears that the model presented for the First Net Network (FNN) is essentially a network of networks. Although we do not object to this design in principle, we note that this model was previously considered and ultimately rejected by the public safety community. Although the design relies upon several wireless carriers, we note that redundancy does not necessarily equate to increased availability or survivability, particularly in this case since many wireless carriers share facilities. Network robustness and survivability are essential public safety network requirements. First Net should consider using existing public safety and critical infrastructure facilities which are already hardened (e.g. utilities). For example, First Net should consider existing public safety and critical infrastructure provider facilities as potential Radio Access Node (RAN) sites since they are built to a higher standard of survivability than typical commercial wireless network facilities. The addition of public safety sites to the pool of potential First Net RAN sites will strengthen the network infrastructure.

III. Alternative Business Model

The First Net board should be open to creative ideas to fund the network, since Federal Government funding alone is unlikely to be sufficient to build, operate and maintain the network. Under proper local control with priorities established and QOS implemented, the underutilized spectrum resources licensed to First Net can be leveraged to minimize network costs to local public safety agencies. We note that the Spectrum Act broadened the potential users of the First Net Network (FNN) to include utilities, transportation agencies, public works and other government users, as well as commercial users on a secondary basis. First Net should attempt to strike a balance between public safety spectrum demand and underutilized spectrum that can be made available to commercial entities on a secondary basis, while maintaining absolute preemptive priority for public safety. Even in dense urban areas such as New York City, public safety demand will not always require full spectrum utilization, since public safety incidents are usually contained within a localized area. As an example, a major public safety incident in Times Square may require full spectrum utilization by public safety users. However, such an incident will not encumber network spectrum resources elsewhere in the City, where unused spectrum may be available for use by commercial users on a secondary basis. First Net should explore the technical feasibility of allocating spectrum dynamically in real time to more fully exploit underutilized spectrum resources, considering both time and location availability. Dynamic real-time use of First Net spectrum on a secondary basis leverages this valuable resource to sustain the network and decrease public safety user costs.

Industry projections indicate that a great deal of additional broadband wireless spectrum will be required nationwide to meet anticipated future demand.[1] First Net should seek to identify self-sustaining funding streams wherever possible. Given the projected scarcity of broadband spectrum, particularly nationwide 700MHz broadband spectrum, and the lack of adequate Federal funding to fully deploy, maintain and operate the FNN, First Net should explore the possibility of attracting private investment to fund the network, either partially or entirely, by leveraging and dynamically managing spectrum whenever and wherever possible.

IV. User Devices

First Net must consider the device implications imposed by a network model requiring roaming across several commercial wireless networks that utilize competing technologies and operate on disparate

[1] See Qualcomm 1000x mobile data challenge presentation, available at: http://www.qualcomm.com/media/documents/1000x-mobile-data-challenge-presentation

spectrum bands. Meeting these requirements may be technically challenging and ultimately financially prohibitive.

V. Leveraging Existing Public Safety Infrastructure

The NYPD urges First Net to utilize existing government-owned infrastructure, such as radio sites, fiber optic cable, and point to point microwave backhaul facilities. The use of existing public infrastructure can potentially dramatically reduce the costs of deploying the NPSBN. The NYPD is concerned that the network architecture model presented at the First Net Board initial meeting focuses almost exclusively on commercial infrastructure. The NYPD shares First Net's vision to utilize commercial wireless carrier sites to expedite network deployment. However, we encourage First Net to explore alternatives, including available state, local, tribal and public utility sites. Many of these assets are already hardened to public safety standards and may be available to First Net at a nominal cost. Utilizing existing public safety sites and infrastructure will not only reduce costs but also strengthen the network by adding hardened sites not included in the commercial site pool. In addition, the use of existing public safety sites may reduce or eliminate delays incurred in new site development due to environmental review, zoning and permitting.

VI. Data Applications

Public safety practitioners have long used data applications in carrying out their mission. The first public safety data applications utilized radio channels intended primarily for voice communications as a wireless transport medium. Computer aided dispatch and data base inquiry applications were predominant. As technology progressed and large slices of spectrum were allocated to commercial providers, broadband wireless networks were deployed and applications were developed that could not run over narrow public safety land mobile radio (LMR) channels. Consequently, public safety agencies were forced to rely on commercial wireless providers to deliver bandwidth intensive applications. Broadband applications developed for public safety were deployed on commercial wireless networks to provide public safety practitioners with a variety of wireless capabilities previously unavailable that could not be delivered on traditional LMR channels due to radio frequency (RF) bandwidth limitations.

Many applications have been developed by public safety agencies to meet their specific requirements. Additionally, public safety applications developed by commercial vendors have been deployed and are

currently managed by public safety agencies. The management of data applications developed specifically for local public safety functions should remain a local or state responsibility. Management will also be required at the local, state or regional level to manage priority access to the network, by device or application, and to manage local or regional emergency incidents requiring dynamic bandwidth reallocation due to network congestion, or to grant priority network access for a specific event.

Public Safety's investment in data applications is significant and should not be stranded. First Net should evaluate locally developed public safety applications, identifying the best applications for a specific purpose and making these applications available to support nationwide interoperability, whilst simultaneously encouraging public safety agencies to migrate from duplicative applications.

VII. Local Control

The vast majority of public safety incidents are local in nature. Since local public safety entities are most familiar with local conditions and interrelationships, it is imperative that local jurisdictions control many of the administrative and operational functions of the PSBN. These functions include device provisioning and definition of user parameters including individual network access priority, qualifications and assigned roles. This is particularly important during major incidents when network resources are taxed and decisions regarding spectrum resource management must be made immediately. First Net should consult with local and State officials to define logical operational geographic areas and establish Network Operations Centers (NOCs) within each area where local officials can monitor and control network parameters on the portion of the PSBN within their predefined area of responsibility.

VIII. Long Term Migration

The NYPD supports the long term migration of public safety voice communications from existing LMR systems to the PSBN, as envisioned in the Department of Homeland Security's Office of Emergency Communications (OEC) brochure dated November 2011[2], which describes the projected evolution of emergency communications. However, states and localities need to invest in and maintain LMR systems until this technology is proven.

We believe that public safety data applications will be the first to migrate onto the FNN due to bandwidth restrictions of existing public safety channels currently used for data, whereas public safety mission

[2] *See Public Safety Communications Evolution Brochure,* Department of Homeland Security, Office of Emergency Communications

critical voice applications will be the last. Therefore, First Net's initial focus should be on data applications.

IX. Network Survivability and Disaster Recovery

Both historic natural disasters such as Hurricane Katrina and recent ones such as Hurricane Sandy underscore the need for robustness in a public safety wireless network. During network design, First Net should consider decentralized back up facilities as a means to ensure network continuity of operations. Eliminating the total reliance on long distance backhaul links, and single points of failure will reduce both the probability and the scope of network outages.

In spite of our best efforts, there may be times when network outages occur that cannot be mitigated through normal procedures. In the event of a macro network failure or during the recovery period following an outage precipitated by a natural disaster, deployable self-contained LTE networks equipped with satellite backhaul can serve to establish islands of coverage until the macro network is restored. Such deployable emergency assets should be of sufficient quantity, widely deployed, and strategically prepositioned to facilitate rapid response.

Respectfully Submitted,

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